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# SCIENCE

FRIDAY, SEPTEMBER 7, 1888.

ONE OF THE IMPORTANT functions of a State geological survey is to furnish accurate and impartial information on the general character of so-called 'mining districts.' Nearly all of our State geologists have had experience in such matters, from the early days when the 'black shale' was exploited for coal, to the later times, when certain iron-fields in Wisconsin needed discouragement. The most recent example comes from Arkansas, where much excitement has arisen in a mining district from which rich discoveries of valuable metals were reported. Professor Branner, recently appointed State geologist, was called upon to examine the region and its ores, and as he failed to find evidence of value in them, and clearly stated his unflattering results in a brief report, he is now made the object of violent abuse from the parties whose hopes are dashed by his work. The better people of the State, however, are with him, and, with their support in his honest course, we shall hope to see his survey continue and thrive. He was elected secretary of the geological section of the American Association at the Cleveland meeting, his nomination being in part due to a desire on the part of his colleagues to express their appreciation of his integrity and their approval of the course he has taken.

THE IMPORTANCE OF PRESERVING the forests becomes evident in South Africa. J. G. Gamble, in the Proceedings of the Institute of Civil Engineers, points out that the soil of Africa becomes dryer every year. Although the amount of precipitation is not decreasing, the springs become less strong, and rivers that used to flow permanently are dry during summer. Gamble considers the devastation of forests, and the grass and bush fires, the principal reasons for this state of affairs. Besides this, the trails made by animals are transformed into cañons of considerable depth by sudden rain-falls. In these cañons, which are in some cases more than thirty feet deep, the surface water runs off before it has time to percolate the soil. Tripp has made observations on the amount of evaporation, and found that on the highlands fully one-half of the falling rain runs off without penetrating into the soil. This experience emphasizes the fact that the ultimate aim of rational forest-culture, so far as its influence upon agriculture is concerned, is the increase of the power of the ground to hold moisture, and thus to prevent the rapid flowing-off of the precipitated rain.

THE PILOT CHART for September, under the title 'Transatlantic Routes,' refers to the collision between the two Danish steamships 'Geiser' and 'Thingvalla,' Aug. 14, about thirty miles south from Sable Island, the sinking of the former in a few minutes, and the drowning of 117 persons, and adds, "The Pilot Chart for December, 1887, discussed this subject of transatlantic navigation at some length, and a supplement was published calling attention to the importance of some general understanding as to the routes to be followed by eastward and westward bound vessels. The plan thus inaugurated has been adhered to each month since that time, one track being plotted as the southern limit for westward-bound vessels, and another as the northern limit for eastward-bound vessels." This discussion, in which it was stated to be "the object of this chart to recommend only what masters of vessels may reasonably be expected to follow, having due regard to the mutual benefits to be derived from such an agreement, as well as the mutual concessions to be made in order to make it effective,"

was reviewed editorially at some length in No. 256 of *Science*, so that it is unnecessary to repeat it here; but it is pertinent to remark, that on the Pilot Chart for each of the last ten months the transatlantic routes recommended for eastward and westward bound steamships for the succeeding month have been carefully plotted; and this fact adds startling emphasis to the closing sentence of the note on the September chart, which is as follows: "This recent disaster would not have occurred had the 'Geiser' been farther to the southward, as recommended for eastward-bound vessels; and the collision thus emphasizes the importance of this matter, not only to owners, agents, masters, and marine underwriters, but to the public generally." This fixes the responsibility for the loss of the 'Geiser,' and the appalling sacrifice of life and property that resulted, beyond the possibility of question; for, as every reader of *Science* knows, the Pilot Chart is published on the first day of each month, and enough copies are furnished at each Atlantic port of the United States to furnish a copy, free of cost, to every vessel that departs during the month. The captain who does not pay heed to its recommendations assumes a fearful personal responsibility, which should not be overlooked in fixing the severity of the punishment he is to receive if disaster results from this neglect. The work of the United States Hydrographic Office is universally recognized as the best of its kind done in the world, and mariners cannot afford to disregard its recommendations.

MR. EVERETT HAYDEN, who is in charge of the meteorological division of the Hydrographic Office, and who has recently distinguished himself by his exhaustive study of the great storm of last March, the results of which are about to be published at length, illustrated by a series of six superb charts, as well as by his contributions to the monthly Pilot Chart, which, under his direction, has become a most wonderful compendium of information that is of vital interest to mariners, has been authorized by Commodore Harmon, acting secretary of the navy, to go to Havana, Cuba, for the purpose of studying the laws of hurricanes. Mr. Hayden will visit the observatory of the Real Collegio de Belen, in Havana, the director of which has carried the study of hurricanes further than any other student of the subject in the world; and he will carry from Washington a great mass of material which he has already collected, and which he hopes to work up in the light of additional information which he expects to obtain in Havana, and from the actual observation of hurricanes during the remainder of the hurricane season. Mr. Hayden expects to be absent about six weeks. Very soon after his return he will make a special report. He also hopes to be able to qualify himself, as no one in the United States is now qualified, to discuss hurricanes in such a manner as to be able to give to the navy and commercial marine of this country, and of all other countries whose ships navigate the North Atlantic Ocean, much most valuable, practical information, and to contribute important data to the science of meteorology.

## PHOSPHORUS PENTOXIDE AS A DISINFECTANT.

SINCE the publication in *Science* of the report of a series of experiments conducted by the Marine Hospital Service at the quarantine station below New Orleans to determine the efficacy of the different disinfectants used, and especially since that article has been copied in so many of the medical journals of the country, great interest has been manifested among quarantine officers, city health-officers, sanitarians, and chemists, in the discovery of some additional disinfectant. Phosphorus pentoxide was suggested, and